REMARKS

I. Introduction

Claims 1-5, 7, 8, 10, 11, 13-18, and 20-23 have been amended. All other claims have either been cancelled or withdrawn. Reconsideration of this application in light of the following further remarks is respectfully requested.

II. The Rejections Based on Lazarus, or Kaster and Lazarus

A. Claim 1

Claim 1 has been rejected as anticipated by Lazarus U.S. patent 5,104,399 ("Lazarus") or, alternatively, as obvious from Lazarus and Kaster et al. U.S. patent 5,366,462 ("Kaster"). These rejections are respectfully traversed.

Claim 1 has been amended to positively recite both the graft conduit and the connector. Thus it is now possible for applicants to distinguish the cited references on the basis of differences between this claimed assembly and what the references show.

Claim 1 specifies that the tissue-piercing members (e.g., elements 436" in applicants' FIG. 37) have a "cantilevered length" that is "only sufficient to pass all the way through the side wall of the tubular graft conduit." In contrast, Lazarus only shows wall engaging members (e.g. 70) that are much longer than that, because Lazarus wants to use the same members to pass through graft 12 and then well into the tissue of the surrounding body conduit 90 to secure the graft to the body conduit. Claim 1 is therefore not anticipated by Lazarus.

Kaster does not make up for the above-described deficiency of Lazarus because Kaster also shows graft-tissue-piercing members 43 with additional length for the additional purpose of securing the graft to native tissue structure 53. Claim 1 is therefore not obvious from Lazarus and Kaster for this reason.

With regard to applicants' hook members (e.g., like 436' in applicants' FIG. 37), claim 1 defines these members as having a "radially outwardly extending length . . . when extended radially outward . . . greater than the cantilevered length of each of the tissue-piercing members." Claim 1 further specifies that these radially outwardly extending hook member portions are "outside the tubular graft conduit beyond the lumen of the end portion of the tubular graft conduit," and that they extend radially outward "without passing through the side wall of the tubular graft conduit."

The undersigned can find no teaching in Lazarus that any of Lazarus's wall engaging members like 70, 72, 116, 120, 136, 140, etc. do not pass through the side wall of graft 12. For example, with regard to FIG. 2, Lazarus says that staple 16 "is here shown with portions extending through the graft 12 for stapling the graft through the interior wall of the graft into the lumen." (Lazarus, column 3, lines 57-60.) Later in that same paragraph, Lazarus says exactly the same thing with regard to staple 17. Lazarus therefore does not show a structure including hook members that can extend radially outwardly and that do not pass through the side wall of the graft. Applicants also continue to maintain that Lazarus does not show some wall engaging members with greater radially outward extending capability than other wall engaging members. Lazarus therefore does not anticipate the hook members defined by applicants in claim 1.

The immediately above-described "hook member" deficiencies of Lazarus are not made up by Kaster for several reasons. First, none of Kaster's members 43 and 44 are "resiliently biased to extend, in use, radially outwardly" as claim 1 requires. This is so because all of these Kaster members require plastic deformation with separate tools. Second, Kaster's longer members 44 (which do not pass through the side wall of graft 51) are not located where claim 1 requires applicants' longer hook members to be located. In particular, claim 1 specifies that applicants' hook members are "outside the tubular graft conduit beyond the lumen of the end portion of the tubular graft conduit." In contrast, Kaster only shows longer members 44 well upstream from the end of the graft lumen (the end of Kaster's graft lumen being where reference numbers 51 point in Kaster FIG. 17, for example). (The everted tissue of Kaster's graft is no longer lumen-defining tissue, and so this everted tissue cannot be considered as relevant to meeting the requirements of applicants' claim 1.) Thus, whereas claim 1 requires the more radially outwardly extendable hook members to be beyond the end of the graft lumen, Kaster only shows longer members 44 upstream along the graft from its end. Indeed, no Kaster FIG. shows any part of any finger 44 ever extending (to the right) beyond the end of the blood-flow lumen through graft 51.

In sum, there are many factors militating against the alleged obviousness of combining Lazarus and Kaster to meet what claim 1 says about applicants' hook members. For example, Lazarus deforms elastically, while Kaster deforms only plastically. Lazarus has no reason to provide wall engaging members of different radially outward lengths because all of those wall engaging members are used by Lazarus in the same way for the same purpose. Kaster's more radially outwardly extending members 44 are not located relative to graft 51 where claim 1 requires the hook members to be located relative to the tubular graft conduit. Lazarus does not teach some wall engaging members not going through the side wall of the graft. Kaster does show some such members 44, but again this is done by Kaster with members that are located completely differently from what claim 1 specifies for the location of applicants' hook members. For all of these reasons, applicants do not believe that the hook member aspects of claim 1 can be fairly said to be obvious from Lazarus and Kaster.

Applicants have now shown that both the tissue-piercing member aspects of claim 1 and the hook member aspects of claim 1 are not anticipated by Lazarus. Applicants have also shown that each of these two aspects of claim 1 are not obvious from the asserted combination of Lazarus and Kaster. Claim 1 should therefore be allowed.

B. Claims 2, 3, 5, and 7

Claims 2, 3, 5, and 7 are all dependent from claim 1, and have all been rejected on the same bases that claim 1 was rejected. Claims 2, 3, 5, and 7 should now be allowed for the same reasons that claim 1 should be allowed.

C. Claim 8

Claim 8 has been rejected on the same bases that claim 1 was rejected. These rejections are respectfully traversed.

Like claim 1, claim 8 has been amended to define an assembly that includes both a graft and a connector.

Arguments like those made above for the allowability of claim 1 apply again to claim 8. The barbs specified in claim 8 are distinguished from all of the wall engaging members of Lazarus and Kaster by being defined as "having length that is . . . only sufficient to pass through tissue of the graft." In contrast, all of the wall engaging members shown by Lazarus and Kaster are much longer than that because all of these wall engaging members are designed to reach other tissue structures that are outside of the graft. Applicants' barbs are therefore neither anticipated by nor obvious from Lazarus and Kaster.

The hook members defined in claim 8 are also neither anticipated by nor obvious from Lazarus and Kaster. For example, claim 8 specifies that the length of the barbs is "less than a radially outwardly extending length of each of the hook members when the hook members extend radially outwardly." This distinguishes Lazarus because all of Lazarus's wall engaging members have the same radially outwardly extending length. Lazarus also has no reason to give different wall engaging members on any given one of his staple different outwardly extending length because all of Lazarus's wall engaging members serve exactly the same purpose, not different purposes as is true for applicants' barbs and hook members. Kaster does not make up these "hook member" deficiencies of

Lazarus for many reasons. First, Kaster only shows plastically deformable (not "resiliently biased") wall engaging members 44. Second, Kaster's members 44 are not located where claim 8 requires the hook members to be located. Claim 8 specifies that the hook members are "disposed outside and beyond an end of the lumen of the graft." In contrast, Kaster's members 44 are located upstream along the length of the graft. Moreover, no part of any of Kaster's members 44 are ever shown anywhere beyond an end of the lumen of the graft. (In Kaster, the everted graft tissue is no longer tissue that defines any part of the lumen of the graft.)

Because neither the barbs nor the hook members defined by applicants in claim 8 are shown in either Lazarus or Kaster, claim 8 is neither anticipated by nor obvious from these references. Claim 8 should therefore be allowed.

D. Claims 10, 11, 13-18, 20, 21, and 23

Claims 10, 11, 13-18, 20, 21, and 23 are all dependent from claim 8, and have all been rejected on the same bases as claim 8. These claims are all now allowable for at least the reasons given above for the allowability of claim 8.

III. The Rejections that Additionally Rely on Kim

Claims 4 and 22 have been rejected as obvious from Lazarus, Kaster, and Kim U.S. patent 5,676,670

("Kim"). These rejections are also respectfully traversed.

Claim 4 is dependent from claim 1. Claim 22 is dependent from claim 8. Claims 1 and 8 have been shown above to be allowable over Lazarus and Kaster. Kim does not add anything to Lazarus and Kaster that is pertinent to the allowability of claims 1 and 8. Accordingly, claims 4 and 22 are allowable over Lazarus, Kaster, and Kim because the claims from which these claims depend are allowable over this combination of references.

IV. Other Matters

The Office action requires applicants to specifically point out support for amendments. This is done as follows. All of the present amendments are supported, inter alia, by FIGS. 36 and 37. For example, these FIGS. show an assembly that includes a graft 530 and a connector 436/437.

The Office action requests applicants to identify copending applications containing similar subject matter to the present claims. This was done by applicants in reply to an earlier Office action.

V. Conclusion

The foregoing demonstrates that claims 1-5, 7, 8, 10, 11, 13-18, and 20-23 are allowable. All other claims have either been cancelled or withdrawn. Reconsideration and allowance of this application are accordingly respectfully requested.

Respectfully submitted,

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